Buzzer

Overview

We will use a buzzer to make the sound in this project.

Materials

Arduino Uno x 1

Buzzer x 1

Breadboard x 1

DuPont wires

Product Description

Active buzzer

Passive buzzer

These are widely used in computers, printers, copiers, alarms, electronic toys, telephones and other electronic products.

The two buzzers look the same. To distinguish them if the buzzer pins are facing up, you can see that the passive buzzer has green circuit board, but active buzzer doesn't and is sealed with black resin. If we can tell them apart from appearance, the most reliable way is to check the parameters of the product with a multimeter. The passive buzzer has a resistance between 8Ω to 16Ω. The active buzzer has a resistance of a few hundred Ohms.

If the active buzzer connects to the power directly it will have continuous sound. The passive buzzer is like a mini electromagnetic speaker which needs an alternating signal to buzz.

Specification:

Active Buzzer

Product Name : Electronic Alarm Buzzer

Sound-making Type : Continuous Sound

Body Size: 12 x 9.5mm / 0.47" x 0.37" (D*T)

Pin Pitch : 7mm / 0.27"

Terminals: 2 terminals

Rated Voltage : DC 5V

Current: less than 25mA

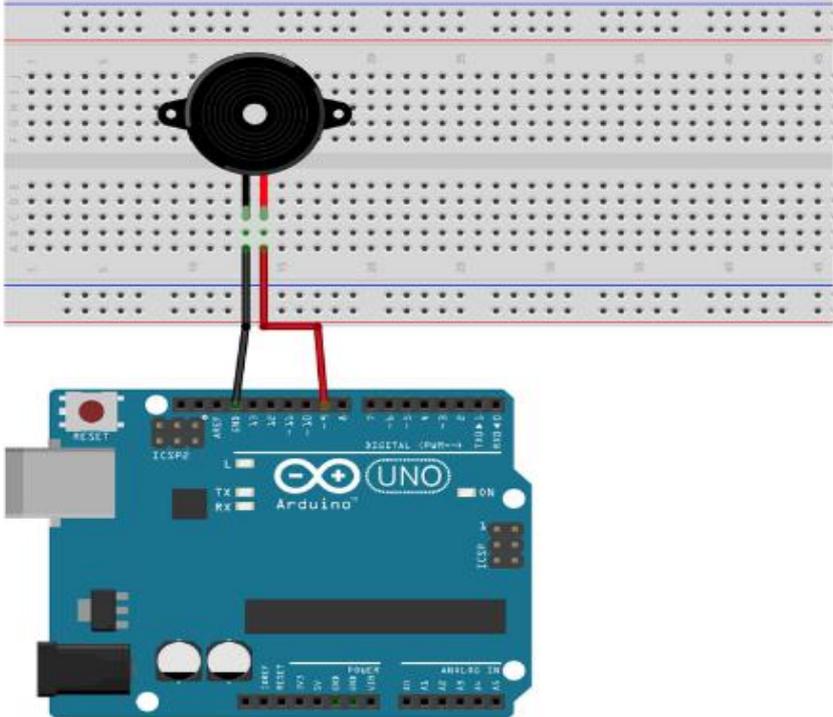Frequency: around 2300Hz

Material : Plastic, electronic parts

Color: Black

Passive Buzzer

Product Dimensions：4.9 x 4.7 x 0.8 inches

Passive buzzer test:

Wiring Diagram

Sample code:

```
int pinBuzzer = 9; //A pin that defines a buzzer

void setup()

{

    pinMode(pinBuzzer, OUTPUT); //Set the pinBuzzer pin to be the output state

}

void loop() {

    long frequency = 300;

    //Emit a waveform with a frequency of frequency

    tone(pinBuzzer, frequency );

    delay(1000); //delay 1s


    noTone(pinBuzzer);//Stop the sound

    delay(2000); //delay 2s

}
```
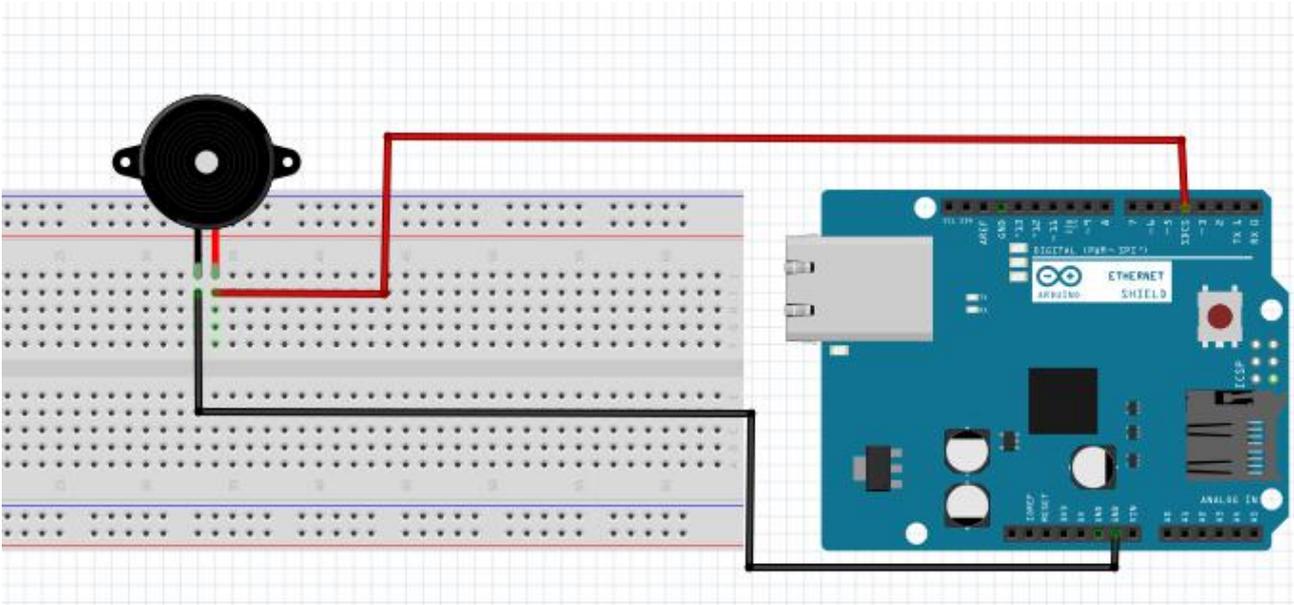
Active buzzer test:

Wiring Diagram

Sample code:

```
int PIN_SPEAKER = 4;

int length = 25;

char notes[] = "ggagCbggagDCggGECbaffECDC";

int beats[] = {1,1,2,2,2,4, 1,1,2,2,2,4, 1,1,2,2,2,2,2, 1,1,2,2,2,4,1};

int tempo = 300;

void playTone(int tone, int duration) {

   for (long i = 0; i < duration * 1000L; i += tone * 2) {

      digitalWrite(PIN_SPEAKER, HIGH);

      delayMicroseconds(tone);

      digitalWrite(PIN_SPEAKER, LOW);

      delayMicroseconds(tone);
```

```
        }

    }

    void playNote(char note, int duration) {

        char names[] = {'c', 'd', 'e', 'f', 'g', 'a', 'b', 'C', 'D', 'E', 'F', 'G'};

        int tones[] = {1915, 1700, 1519, 1432, 1275, 1136, 1014, 956, 853, 759, 716, 637, 568};

        for (int i = 0; i < 12; i++) {

            if (names[i] == note) {

                Serial.print("value:");

                Serial.println(note);

                playTone(tones[i]*2, duration);

            }

        }

    }

    void setup() {

        pinMode(PIN_SPEAKER, OUTPUT);

    }

    void loop() {

        for (int i = 0; i < length; i++) {

            if (notes[i] == ' ') {

                delay(beats[i] * tempo);

            } else {

                playNote(notes[i], beats[i] * tempo);

            }

            delay(tempo / 2);

        }
```

```
}
```

Results

Passive buzzer rings for a while and then stops.

Active buzzer will sing birthday song.